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	First Named Inventor	Xm WONG et al	
	Art Unit	2652	
	Examiner Name	Brian E. MILLER	
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Signature	<i>Stephen T. Neal</i>
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PATENT

DOCKET NO.: 12553/29

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : Xm WONG et al.

SERIAL NO. : 09/741,684

FILED : December 18, 2000

FOR : BONDING PAD OF SUSPENSION CIRCUIT

GROUP ART UNIT : 2652

EXAMINER : Brian E. MILLER

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Pilar Rodriguez
Pilar Rodriguez

ATTENTION: Board of Patent Appeals and Interferences

REPLY BRIEF UNDER 37 C.F.R §1.193

Dear Sir:

This is in reply to issues raised by the Examiner in his Answer of September 7, 2004.

Claims 7-11 were rejected under 35 U.S.C. §102(b) as being anticipated by Albrecht et al. U.S.

Patent No. 5,821,494 (hereinafter "Albrecht"). Claims 7-11 were rejected under 35 U.S.C.

§102(b) as being anticipated by Ainslie et al. U.S. Patent No. 4,761,699 (hereinafter "Ainslie").

Claim 12 was rejected under 35 U.S.C. §102(b) as being unpatentable over Albrecht or Ainslie.

The Error of the Examiner's Analysis In Finding Claims 7-11 Unpatentable Over Albrecht

Appellants believe that the Examiner's conclusion of anticipation of claims 7-11 is based on a misunderstanding or misinterpretation of the claims and the prior art. Albrecht generally discloses a method of making a solder connection between a slider pad and a suspension pad by forming a solder bump on the solder pad at the slider level, affixing the slider to the suspension so that solder can be reflowed between the slider pad and the suspension pad and then employing a laser beam to reflow at least the solder bump to form a solder connection between the slider pad and the suspension pad. The Appellants' present invention discloses a slider bonding pad initially without bonding substance coupled to a suspension such that the bonding substance on the suspension bonding pad is reflowed so as to electrically couple the suspension bonding pad and the slider bonding pad. The Examiner makes a three point argument, labeled A, B, and C in his answer. For point A, the Examiner states:

The Examiner maintains that Albrecht would include the above limitation, since, that limitation would be considered a process step and/or an intermediate product. It is understood that the slider bonding pad would be initially be without bonding substance, i.e., before assembly (see FIG. 12A of Albrecht et al).

(Examiner's Answer, p. 5).

The Appellants would reiterate that, in this instance, process would affect the structure of the end product. The original placement of the solder will determine how the solder will flow, and what shape the solder connection between the slider pad and the suspension pad will take.

For point C, which covers similar ground, the Examiner states:

Appellants' arbitrary comment (on page 5, lines 6-7 of the Brief) that "The gravitational pull on the solder reflow and the initial placement of the solder will affect the shape of the solder bond" is considered moot since there has been no specific recitation of gravitational pull and shape of the solder bond with respect to claims 7-11, and should not be deemed relevant to the arguments of record.

(Examiner's Answer, p. 7).

The initial placement of the solder is a limitation that is discussed by the claims. Due to gravitational pull and other factors, the initial placement of the solder will affect the shape of the solder bond.

For point B, the Examiner states:

It is important to note here, that the claims do not exclude this condition, i.e., that there is bonding substance present on only the suspension bonding pad. Clearly, Albrecht shows a condition where there is no bonding substance on the slider bonding pad (see FIG. 12A). Assuming *arguendo* that the claims were amended to include such language, patentability may still not be found under 35 U.S.C §103.

(Examiner's Answer, p. 6).

The Examiner is reading the word initially in such a way as to have no meaning and to be clearly contrary to the context of the claim. Albrecht discloses a slider and suspension in which the solder bond is created by applying solder to both the slider pad and the suspension pad, or applying solder to first the slider pad then reflowing the solder to the suspension pad. The one way to create a solder bond that is not disclosed by Albrecht is to apply solder to the suspension pad and reflow it to the solder pad. Therefore, Albrecht does not disclose the invention as claimed.

The Error of the Examiner's Analysis In Finding Claims 7-11 Unpatentable Over Ainslie

Appellants believe that the Examiner's conclusion of anticipation of claims 7-11 is based on a misunderstanding or misinterpretation of the claims and the prior art. Ainslie generally discloses a slider mechanically attached to the suspension by means of reflowed solder balls. The Appellants' present invention discloses a slider bonding pad initially without bonding substance coupled to a suspension such that the bonding substance on the suspension bonding pad is reflowed so as to electrically couple the suspension bonding pad and the slider bonding

pad. The Examiner makes a single argument, labeled D in his answer. For point D, the

Examiner states:

Appellants' sole contention with respect to Ainslie et al (4,761,699) (on page 6 of the Brief) is that "In other words, the suspension does not have a structure such as a pad, it has the absence of a structure in the form of circular openings."

This is not found persuasive by the Examiner, as lead termination 47 clearly is indicated in FIGs. 6 & 7, and would necessarily constitute a metal bonding pad, as if were not, electrical connection between slider bonding pad 4 and suspension bonding pad 47 would not be facilitated. Ainslie sets forth that bonding pad 47 is the end termination of conductive layer 44 which includes leads 46, which leads electrically connect the suspension to the head terminals (see col. 5, lines 33-41, 54-57 & col. 7, lines 15-32).

(Examiner's Answer, p. 7).

The first section of Ainslie cited by the Examiner states:

The suspension 40 comprises a nonconductive base layer 42, a patterned conductive layer 44, and an insulating cover layer 48. The base layer 42 may be a polyimide sheet and the patterned conductive layer 44 a vapor-deposited copper film. The insulating cover layer 48 may be a layer of polyimide formed over the patterned conductive layer 44 and bonded to the base layer 42. The patterned conductive layer 44 is thus formed between base layer 42 and cover layer 48 and is visible in FIG. 2 because of the translucency of cover layer 48. The electrical leads 46 form part of the conductive layer 44 and extend beneath the slider 16 where they end at terminations 47.

The conductive pattern of layer 44 is better illustrated in FIG. 3 and includes electrical leads 46 with terminations 47, and large area portions 52, 54 which form a supporting base for the mechanical attachment of the slider in the manner to be described below.

(Ainslie, Col. 5, Lines 23-41).

The second section of Ainslie cited by the Examiner states:

Transducer 11 is the active transducer and electrical connection of it to the terminations 47 formed as part of the conductive pattern 44 is made through generally right-angled solder joints 86.

(Ainslie, Col. 5, Lines 54-57).

The third section of Ainslie cited by the Examiner states:

With the slider supported in this position heat is then applied to all of the solder balls. This causes solder balls 80 to collapse, thereby permitting solder balls 82, 84 to come into contact and flow together to form generally right-angled solder joints 86 for

providing the required electrical connection between transducer 11 and leads 46. The right-angle joints 86 formed on inactive transducer 13 provide electrical connection to conductive portion 52 and thus to slider 16.

The completed slider-suspension assembly is illustrated in FIG. 6, which shows the collapsed solder balls 80 and the joined solder balls 82, 84 forming the right angled solder joints 86. When the solder has cooled and solidified the slider is both mechanically attached to the suspension and the transducer leads 19, 21 are electrically connected to the electrical leads 46 formed on the suspension.

(Ainslie, Col. 7, Lines 15-32).

Apparently the Examiner is contending the exposed ends of the leads constitute pads.

Appellants would argue that the exposed ends of the leads are not pads, and Ainslie would agree.

Ainslie states:

The manner in which the solder connection of slider 16 is made to suspension 40 can be better understood by reference to FIGS. 4, 5, and 6. FIG. 4 illustrates a portion of slider 16 with *solder contact pads 70* formed on the back side 24 and solder-wettable regions 60, 63 formed on suspension 40.

(Ainslie, Col. 6, Lines 3-5)(Emphasis Added).

Ainslie clearly states that pads were present on the slider. If Ainslie had disclosed pads on the suspension, Ainslie would have specifically referred to them as pads. For these reasons, Ainslie does not disclose a solder bond created by the invention as claimed.

The Error of the Examiner's Analysis In Finding Claim 12 Unpatentable Over Albrecht and Ainslie

Appellants believe that the Examiner's conclusion of obviousness of claim 12 is based on a misunderstanding or misinterpretation of the claims and the prior art. The Examiner contends that claim 12 is obvious in view of either Ainslie or Albrecht. The Examiner makes a single argument, labeled E in his answer. For point E, the Examiner states:

With respect to Issues "C." and "D." as set forth in the Brief starting at page 6 (last 2 lines and ending on page 7), as there are no specific arguments with respect to whether or

not claim 12 is obvious under either Ainslie or Albrecht, the Examiner maintains the rejection(s) of claim 12, as set forth, supra.

It is considered that Appellants' arguments with respect to claim 12 fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the reference.

(Examiner's Answer, p. 7).

As stated in the Appeal Brief on pages 6 and 7, claim 12, by its dependency on claim 7, contains the same limitation that both Albrecht and Ainslie fail to disclose. Additionally, Examiner fails to disclose any reason why the limitations enumerated in claim 12 would be obvious other than to cite the size of the slider pad in Albrecht. As the solder bump in claim 12 is formed on the suspension pad, the size of the slider pad does not have the importance implied by the Examiner. Therefore, Albrecht and Ainslie do not disclose the invention as claimed.

CONCLUSION

In conclusion, Appellants submit that the Examiner has improperly construed the claims on appeal, misreading the elements that are at the heart of the claimed invention. These elements are missing from the cited art and Appellants submit that, because of this, the Examiner's rejection should be reversed.

The Examiner's Answer was dated September 7, 2004, so this Reply Brief is timely filed.

The Commissioner is hereby authorized to charge any additional fees required or credit any overpayment in connection with this correspondence to KENYON & KENYON, Deposit Account No. **11-0600**.

Respectfully submitted,

KENYON & KENYON

Date: November 8, 2004

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